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## CONTAINERS

*used in*

## SHIPPING

## FRUITS

*and*

## VEGETABLES



**F**IVE TYPES of containers are used in shipping fruits and vegetables—baskets, crates, boxes, barrels, and sacks. The containers used for shipping a given commodity may vary widely in different sections of the country.

The increase in the production of fruits and vegetables, the increase in carload shipments of these commodities, the development of producing sections, the introduction of new types of containers, the penetration into one section of types of containers popular in other sections, and the keen competition between many producing sections have served to stimulate interest on the part of farmers in the containers used throughout the country for the kinds of fruits and vegetables they grow and ship. Without recommending one type over another, this bulletin sets forth, under each commodity, what containers are used and those most favored by important shipping sections.

# CONTAINERS USED IN SHIPPING FRUITS AND VEGETABLES

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## INTRODUCTION

THE CONTAINERS used in shipping fruits and vegetables are of vital importance in the handling of these commodities. More than a million carloads of fruits and vegetables are shipped annually in the United States. The greater part of this produce is packed in containers of some sort. To package this great quantity requires more than one billion containers, representing an investment of several million dollars.

The containers used are of five types—baskets, crates, boxes, barrels, and sacks. The baskets used are of seven types—berry, till, hamper, round stave, straight side or tub, splint or market, and Climax or grape baskets. Crates and boxes have either panel or solid ends, and are made either of rotary-cut or of sawn material. The barrels are of three sizes—the standard fruit and vegetable barrel, the standard cranberry barrel, and the 4-bushel barrel. The fruit and vegetable barrels are of three types—stave, open-stave, and veneer. Sacks are generally made of jute, but may be made of cotton or other fibers.

The containers in use for shipping a given commodity may vary widely in different sections of the country. For the same kind of vegetable one section may use a basket, another a crate, a third a barrel, and a fourth a sack. The increase in the production of fruits and vegetables, the increase in carload shipments of these commodi-



ties, the development of producing sections, the introduction of new types of containers, the penetration into one section of types of containers popular in other sections, and the keen competition between many producing sections have served to stimulate interest on the part of farmers in the containers used throughout the country for the kinds of fruits and vegetables they grow and ship. It is impossible to mention all the different containers that may be used in different sections at various times. Some commodities are shipped from individual sections in such small quantities that the use of no particular container has been developed, and whatever is handy is used. Again, fruits and vegetables taken into city markets by nearby farmers may move in a variety of containers. For instance, in one New Eng-

land city spinach was found on the market in lettuce crates, egg cases, orange boxes, and hampers. In this bulletin an effort is made to mention the containers most favored by the important shipping sections.

#### APPLES

The three containers used for the shipment of apples are the barrel, the box, and the basket. The barrel (fig. 1) has been standardized by Federal law, its cubical content being 7,056 cubic inches. Commercially, 1 barrel is generally considered equivalent to 3 boxes or 3 bushel baskets. Actually, the barrel exceeds the capacity of 3 boxes by 535.5 cubic inches, or approximately 8 quarts, and that of 3 bushel baskets by 604.74 cubic inches, or 9 quarts. The barrel has been and still is the popular package in the eastern part of the United States, but is being replaced to some extent by the basket, especially for the earlier apples.

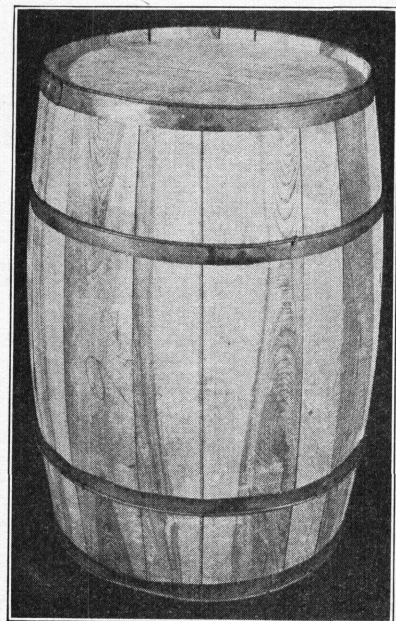


FIGURE 1.—Typical United States standard apple barrel. Wood hoops are used on a majority of these barrels.

The northwestern apple box (fig. 2) has been standardized by law in the following States in the West: California, Idaho, Montana, New Mexico, Oregon, Utah, and Washington. As a result it is used almost to the exclusion of other packages except in Idaho and Utah, in which many baskets are used, and in California, which permits the use of other boxes if marked "irregular." In California a special box is used for the packing of some apples.

How complete has been the acceptance of the northwestern apple box by the country as a whole is shown by the fact that it is also recognized by law in Connecticut, Indiana, Kansas, Maine, Massachusetts, and Vermont, and the District of Columbia, and that in other sections this box is the one instinctively thought of when an



apple box is mentioned. This box is also used for the shipment of quinces.

The inside dimensions of the northwestern box are  $10\frac{1}{2}$  by  $11\frac{1}{2}$  by 18 inches, giving it a cubic content of 2,173.5 cubic inches. This is 23.08 cubic inches in excess of the United States standard bushel of 2,150.42 cubic inches, but as the excess tolerance allowed for a bushel container under the United States Standard Container Act is 50 cubic inches, this box may be considered as a bushel container. A reduction of the depth from  $11\frac{1}{2}$  to 11 inches would bring the capacity to almost exactly 1 bushel, but the packs now in use in the Northwest have been worked out on the basis of the present measurements, and it is not believed that any good purpose would be served by seeking a change. A description of these packs may be found in Farmers' Bulletin No. 1457, *Packing Apples in Boxes*.

Even with a container as well standardized as the apple box, variations in specifications are found. The schedule of specifications for fruit and vegetable crates and boxes, issued by the Department of Agriculture, lists eight separate specifications for domestic apple boxes. Ends are cut eleven-sixteenths, three-fourths, twenty-five



FIGURE 2.—Northwestern standard apple box.

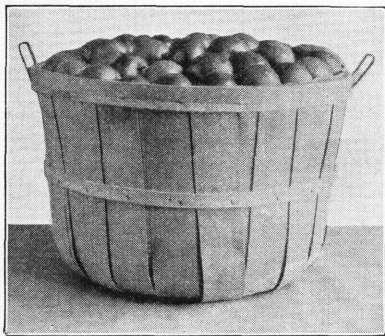


FIGURE 3.—Apples in a 1-bushel round stave basket.

thirty-seconds, thirteen-sixteenths, and seven-eighths inch thick, sides five-sixteenths, and three-eighths inch; and tops and bottoms three-sixteenths and one-fourth inch. Sides and tops and bottoms are cut in the following lengths:  $19\frac{3}{8}$ ,  $19\frac{1}{2}$ , and  $19\frac{3}{4}$  inches. These variations in thickness are largely due to the manufacturer's wish to cut as economically as possible the stock from which shook is made up; the variations in length represent an attempt to maintain the inside length of the box at 18 inches, and they occur in conjunction with variations in thickness of ends. Tops are sometimes cut longer than sides and bottoms in order to make them easy to nail over the bulge pack. If practicable, it would be desirable to have a uniform length for apple-box shook so that tops and bottoms could also be used for peach, pear, and other boxes.

Although most of the apple boxes used in the East are shipped in from the Pacific coast, the eastern-made panel-end type is sometimes used. To maintain the standard inside length of 18 inches this type should have an outside length of 20 inches.

The baskets most commonly used for apples are the 1-bushel size of the round stave and straight-side or tub type (figs. 3 and 4). The basket has been growing in popularity during the last few years, and



has made appreciable inroads on the use of the barrel. The growth in popularity of the basket has been intensified by the development of the various types of straight-side or tub baskets, and by the introduction of ring-packing devices. The use of the straight-side type for export shipments has proven feasible when the baskets are properly made and properly strapped.

The use of bushel hampers for apples has been common in Delaware, Maryland, and New Jersey, but there is a tendency for them to be

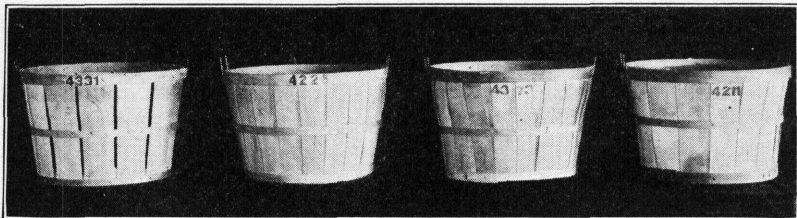


FIGURE 4.—Typical 1-bushel straight-side or tub baskets, used for apples and many other commodities.

replaced by the basket, particularly the straight-side type. In this section a bushel hamper with loose bottom was formerly used to a great extent. With this type the cover is placed in position, the hamper is turned bottom up, and the fruit is ring-packed through the bottom end. The bottom is then forced into place and nailed in. One of the types of straight-side basket is also made with a loose bottom and is packed in the same way.

#### ARTICHOKES

Artichokes are shipped in boxes of three sizes, the full-size box measuring  $9\frac{3}{4}$  by 11 by  $20\frac{3}{4}$  inches, the half size,  $4\frac{3}{4}$  by 11 by  $20\frac{3}{4}$  inches, and the so-called "artichoke lug,"  $8\frac{1}{2}$  by 14 by  $22\frac{3}{4}$  inches inside. The full-size box is the old California apple box (fig. 5).



FIGURE 5.—Full-size California artichoke and rhubarb box.

#### ASPARAGUS

Asparagus of necessity must be marketed in special crates or boxes (fig. 6). A popular type of crate is pyramidal in form. Asparagus is usually shipped in crates holding either 1 or 2 dozen bunches, although it may be shipped loose in either boxes or crates. The pyra-

mid crate, standardized by law in California, has two compartments. The inside measurements of this crate are usually  $10\frac{1}{2}$  by  $9\frac{1}{2}$  by 11 by 18 inches, with outside length of slat of  $19\frac{1}{2}$  inches. Shorter crates, with an outside length of slat of 16 inches, are sometimes used. The center partition used in the regular crate is often omitted from this short crate.

Three crates are used in the Southeastern States. One is practically the same as the California standard except that the length is  $17\frac{1}{16}$



inches. The other two are  $12\frac{7}{8}$  by  $9\frac{1}{4}$  (top) by  $10\frac{1}{2}$  (bottom) by  $17\frac{5}{16}$  inches, and 14 by  $5\frac{1}{2}$  (top) by  $7\frac{1}{4}$  (bottom) by  $19\frac{5}{16}$  inches, respectively.

A 2-dozen size crate has previously been the popular size in New Jersey, but the present tendency is toward a dozen size container, especially for extra fancy asparagus. The 2-dozen-size crate has an inside measurement of  $10\frac{1}{2}$  by  $14\frac{1}{2}$  by 17 by  $23\frac{3}{8}$  and an outside length of slat of 25 inches. This crate does not have any center partition. The bunches are packed 4 to the width and 6 to the length of the crate. New Jersey, Maryland, Delaware, and Pennsylvania have so recently begun to use a crate holding 1 dozen bunches that no uniform crate has been adopted. Variations exist primarily because of differences in the manner of packing and in the size of bunches. As the 2-dozen size crate used in this section does not have a center partition, the use of one does not seem essential in the 1-dozen size.

A specification which seems representative for this crate is  $16\frac{1}{2}$  by  $10\frac{1}{2}$  by  $12\frac{1}{4}$  by  $10\frac{1}{2}$  inches inside, with an outside length of slat of  $17\frac{3}{4}$  inches. This specification provides a crate in which can be

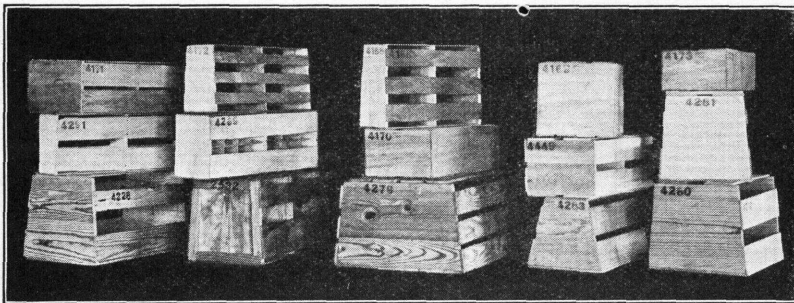


FIGURE 6.—Various types of asparagus crates.

packed firmly 1 dozen, or half as many, of the same size bunches as are packed in the 2-dozen crate.

The section around Kennewick, Wash., formerly marketed its asparagus in a flat crate, with the asparagus packed loose in two compartments, the tips toward the center partition. Typical dimensions of such a box are  $2\frac{1}{4}$  by 14 by 18 inches, inside. Of recent years the tendency in this section is toward the use of pyramid crates. One such crate is 12 inches long,  $7\frac{1}{2}$  inches high,  $9\frac{1}{2}$  inches wide at the bottom, and  $5\frac{1}{2}$  inches wide at the top, inside. This holds 12 pounds of bulk asparagus.

The Walla Walla (Wash.) section has used pyramid crates for several years. Two different sets of dimensions seem to be commonly used. In one case the ends are  $10\frac{3}{4}$  inches wide at the bottom and 8 $\frac{1}{2}$  inches wide at the top, with a depth of  $10\frac{1}{2}$  inches and an inside length of  $18\frac{3}{8}$  inches. The other crate is  $9\frac{3}{4}$  inches wide at the bottom,  $5\frac{3}{4}$  inches wide at the top,  $8\frac{1}{2}$  inches deep, and 18 inches long inside. This crate holds 18 pounds of bulk asparagus.

A rectangular-compartment crate holding 24 bunches is in use in Illinois, each compartment containing a bunch, but its use is not extensive. Some growers in Ohio pack asparagus in splint or market baskets.

Sizes of crates might easily be simplified. If asparagus is bunched, the 1- and 2- dozen sizes should be sufficient, the crates from different



sections having approximately the same inside measurements, but with the use of a center partition optional. In addition, there seems to be a demand for a crate in which the asparagus is not bunched, although there is now an entire lack of uniformity in the dimensions of such crates.

### AVOCADOS

Shipment of avocados has been almost entirely by express. California avocados are shipped in crates of three different sizes, known as the lug, the half lug, and the flat. The lug, which measures  $7\frac{1}{4}$  by  $13\frac{3}{4}$  by  $15\frac{1}{8}$  inches, holds about 2 dozen medium to large fruits; the half lug, which measures  $4\frac{1}{2}$  by  $13\frac{3}{4}$  by  $15\frac{1}{8}$  inches, holds a dozen large fruits or 2 dozen small fruits; the flat, which measures  $2\frac{1}{4}$  by  $11\frac{1}{2}$  by  $15\frac{1}{8}$  inches, holds about a dozen medium fruits.

Some Florida avocados are shipped in iced crates, although the 6-basket peach-and-tomato crate without baskets or dividers is used to some extent. In this crate the avocados are packed in excelsior or wood wool. Sometimes a center head is placed in this crate, and an extra slat on each side. A box  $4\frac{3}{16}$  by  $13\frac{1}{2}$  by  $16\frac{1}{8}$  inches inside is also used.

The refrigerator crates are of two kinds and both are patented containers. One of them is made with three compartments; the one in the center is a ventilated compartment for ice and the two end compartments are for the avocados. The cover of the center compartment is in the form of a slide, and can be opened and closed for reicing during transit without disturbing the fruit in the two outside compartments.

The other crate is similar, but instead of a center ice chamber it has a top tray made of one piece.

Cleats are nailed in this crate 4 inches from the top, and a tray or extra top is cut small enough to go down in the crate, resting on the cleat in order to hold the ice. This crate is the regular pepper crate with the additions just described.

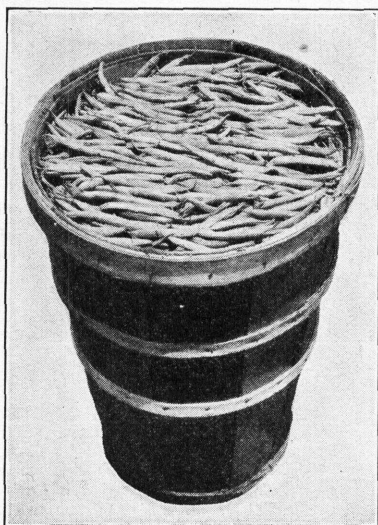


FIGURE 7.—Typical bean hamper.

### BEANS

Practically all green beans are shipped in hampers, although round stave and tub baskets are used to some extent (fig. 7). There is considerable difference of opinion in various sections as to the best size of hamper to use for this commodity. Florida and Mississippi and some other parts of the South formerly used the 28-quart hamper, believing any larger size to be too large. Under the Standard Container Act of 1928 the use of this size became illegal after November



1, 1929. Since that date growers have used either the 24-quart or the 32-quart size. The North Carolina and Virginia sections use the

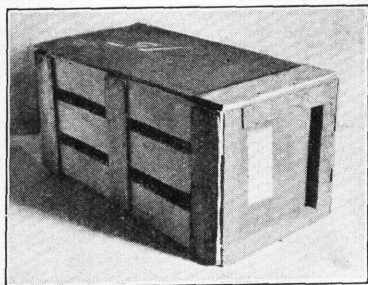


FIGURE 8.—Twenty-four pint American berry crate.

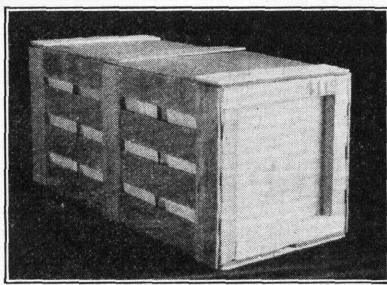


FIGURE 9.—Twenty-four quart American berry crate.

40-quart hamper. New Jersey uses the bushel size. Hampers are also coming into use on the Pacific coast as bean containers.

### BERRIES

Berries of all kinds are packed in one-half pint, pint, and quart baskets known as boxes or cups; crates are used only as secondary shipping containers for the berry boxes or cups. Six types of boxes are in use—the American, Hallock, Leslie, stitched tray, metal rim, and paper. Special crates have been developed to fit these types. Unfortunately, there is considerable variation in the dimensions of crates for particular types of boxes.

In the eastern section of the country the most popular type of box is the American. The crates generally used hold 24 pints, 24 quarts, and 32 quarts (figs. 8, 9, and 10). Sixty-pint and sixty-quart crates are used to some extent in the Eastern Shore and Norfolk sections. A crate holding 36 oblong pint cups is used in New Jersey and has become predominant in Florida. Typical inside dimensions of the crates in most common use in the East are as follows:

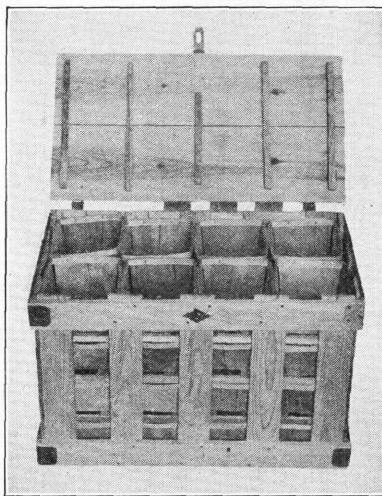


FIGURE 10.—Thirty-two quart American berry crate with hinged cover.

Capacity and type of crate	Inside dimensions (inches)	Length of slat
24-pint.....	9 by 9 by 18.....	<i>Inches</i> 20
24-quart.....	11 by 11 by 22.....	24
32-quart nailed top.....	14 $\frac{3}{4}$ by 11 by 22.....	24
32-quart hinged top.....	14 $\frac{3}{4}$ by 11 by 22.....	23 $\frac{1}{2}$
36-oblong-pint.....	9 by 11 by 22.....	24



The American type of box is also used in a special container, known as a pony refrigerator, used in the shipment of early strawberries from southern Florida (figs. 11 and 12). This is a heavy

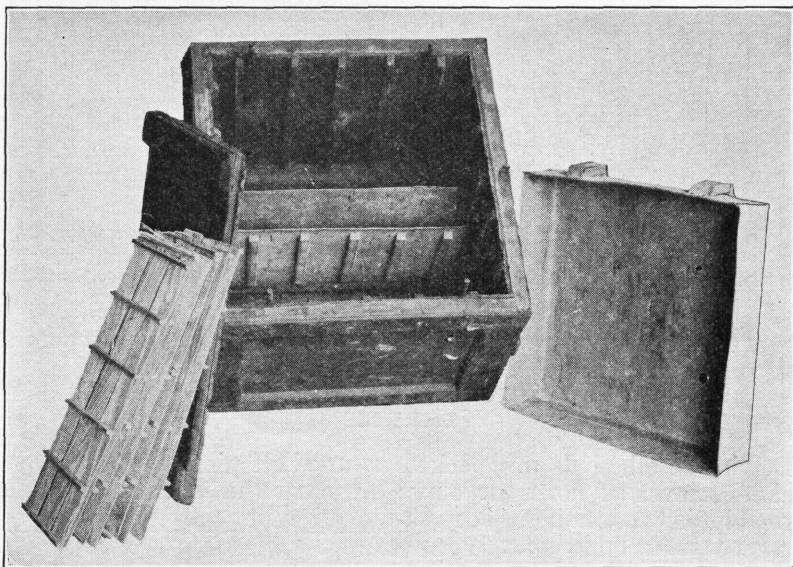


FIGURE 11.—Florida pony refrigerator used for express shipments of berries. Note center ice compartment, top ice pan, dividers, and cover.

case, usually holding eighty 1-quart boxes or 150 oblong pints. The layers of boxes are separated by dividers of the type used in the ordinary crates. Metal trays are placed in the center or in the top of the box, or both, to hold a supply of ice. Airtight covers are clamped on after the berries and ice are in place. These pony refrigerators are well adapted to long-distance express shipments when it is not possible to load full cars and when prices are high. An objection occasionally raised is that the ice pans sweat and allow water to drop on the berries, causing some injury. These refrigerators must be returned to the owner after being emptied.

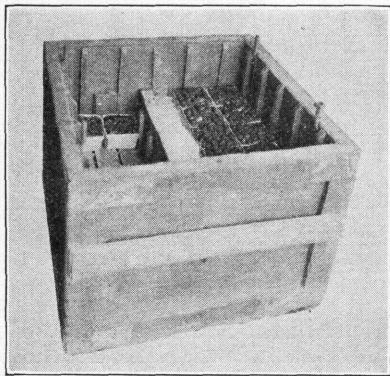


FIGURE 12.—Florida pony refrigerator partially filled.

On the Pacific coast only half-pint and pint berry cups are used. These are of three types—metal rim, stitched tray, and Hallock (fig. 13). The first two are used in California, a large part of the stitched trays being made of paper. The Hallock is used in Oregon and Washington. The half-pint berry cups are used mainly for shipping raspberries. The 24-pint crate is the most popular size for Hallocks; this crate is made in a number of different styles.



The following are dimensions of typical Pacific coast berry crates:

Capacity and type of crate	Inside dimensions (inches)	Length of slat
		<i>Inches</i>
12-pint Hallock.....	3½ by 13¾ by 18.....	19¾
12-pint San Jose.....	2¾ by 13½ by 18¾.....	19½
12-pint Imperial Valley.....	3¾ by 13½ by 17.....	19
15-pint Los Angeles.....	3¾ by 13½ by 22¼.....	23
24-pint shallow Hallock.....	5½ by 16½ by 22¼.....	24½
24-pint deep Hallock.....	6 by 13¾ by 18¾.....	19¾

In the Middle West the Hallock and Leslie boxes are still used in some sections. Crates for Hallock boxes are made in 12- and 24-pint and 12-, 16-, and 24-quart sizes. The 16-quart is the popular size. A typical dimension for this crate is 7½ by 10½ by 20½ inches. A popular set of dimensions for the 24-pint crate is 6 by 10½ by 20½ inches inside. Leslie crates are mainly of three sizes—the 24-half-

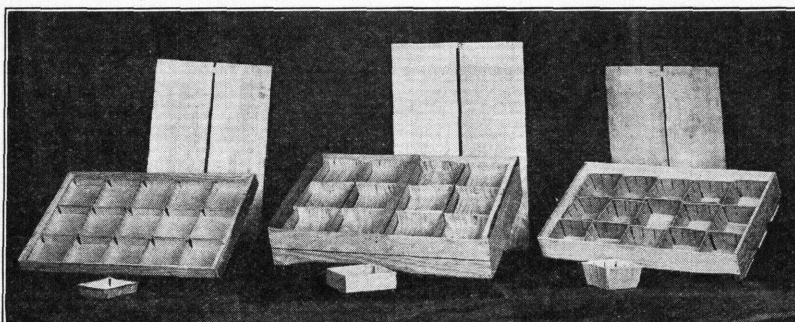


FIGURE 13.—Western berry crates and cups. Left, tray with 15 half-pint metal-rim cups. Center, 24-pint Hallock crate from Puyallup, Wash. Right, tray with fifteen 1-pint metal-rim cups.

pint crate, the 24-pint crate, and the 24-quart crate. The following are typical dimensions for these sizes:

Capacity and type of crate	Inside dimensions (inches)	Length of slat
		<i>Inches</i>
24-half-pint Leslie crate.....	4 by 13¾ by 20½.....	22
24-pint Leslie crate.....	5½ by 13¾ by 20½.....	22
24-quart Leslie crate.....	7¾ by 15½ by 20½.....	22

### CABBAGE

Cabbage is shipped largely in bulk although in some of the early producing and midseason sections shipments are made extensively in containers. Barrels, hampers, and even sacks are used to some extent but are being replaced by crates. A large number of different sizes and shapes of crates have been used with little uniformity as to the quantity each holds. Standard crates have not been so firmly established for cabbage as for some other products because in many instances the price received has not justified careful packs. For this reason cabbage not shipped in bulk has been packed in the most



convenient type of container regardless of size. Another factor that has contributed to the diversity in cabbage crates is the attempt by shippers to pack a certain weight of cabbage in a crate, the 100-pound basis being popular. As the weight varies widely according to the looseness or compactness of the heads this custom has resulted in a great number of sizes.

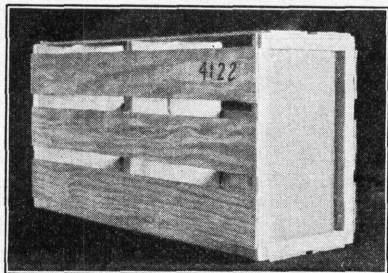


FIGURE 14.—Florida cabbage crate.

It has been thought that some simplification in the number of cabbage crates might be brought about by the adoption of sectional standards. This seems necessary because of the methods of construction peculiar to different parts of the country. The following sizes have been suggested.

Type of crate	Inside dimensions (inches)	Length of slat
Florida .....	12 by 18 by 33 .....	<i>Inches</i> 36
Norfolk .....	12 by 18 by 33 .....	37 $\frac{3}{8}$
Mississippi Valley .....	16 by 16 by 27 $\frac{1}{2}$ .....	30
Colorado .....	22 by 18 $\frac{1}{4}$ by 24 .....	25 $\frac{3}{4}$
Pacific coast .....	22 $\frac{1}{4}$ by 24 by 20 $\frac{3}{4}$ .....	24

The Florida and Norfolk types have the same cubical content but the Florida type is a panel-end rotary-cut crate whereas the Norfolk

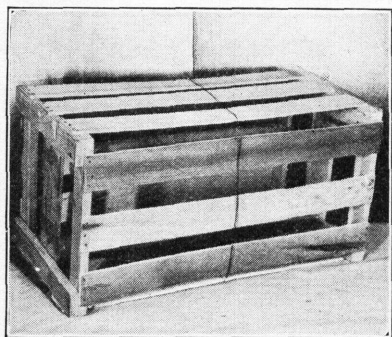


FIGURE 15.—Mississippi Valley cabbage crate.

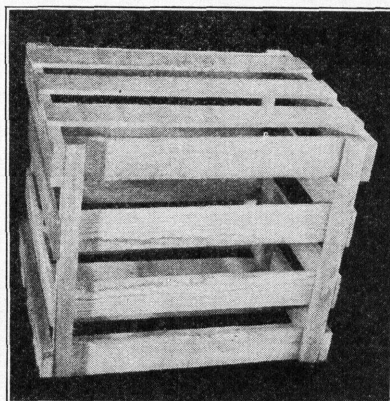


FIGURE 16.—Colorado cabbage crate.

crate is made of sawn slats. Four types are illustrated in figures 14 to 17, inclusive.

The Colorado cabbage crate (fig. 16) is usually made up with the side slats on the inside of the posts, a different method of construction from that used in other sections. The Mississippi Valley type (fig. 15) has been a popular crate for many years, the size mentioned being one of a number of variations used in different parts of that area.



During recent years there has been a definite trend to smaller containers for many fruits and vegetables, including cabbage. What may be called a "half-crate", 9 by 13 by 21 $\frac{5}{8}$  inches, inside, has

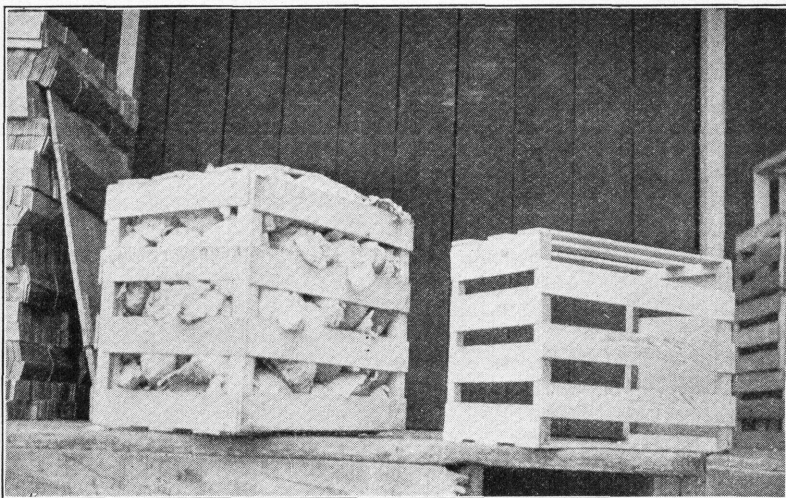


FIGURE 17.—Pacific coast cabbage crates.

become popular in some of the earlier cabbage-growing sections. This crate was originally designed for head lettuce but is now commonly used in several sections for bunched vegetables as well as for cabbage.

#### CANTALOUPS

Approximately three-fourths of the carload shipments of cantaloups originate in Arizona, California, and Colorado. The crates

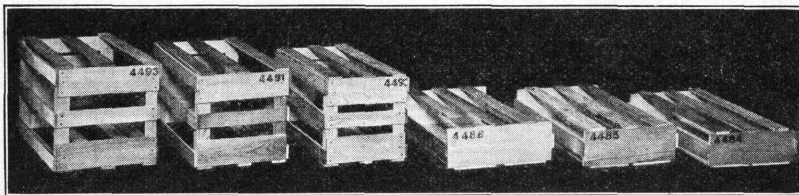


FIGURE 18.—Western cantaloup crates. From left to right: Jumbo, standard, pony, jumbo flat, standard flat, pony flat.

used in these States are designed to hold certain numbers of cantaloups, and their use has spread as far east as the Mississippi Valley. The same crates are used for honey-ball melons. The following sizes generally used in the West, are provided for in the California law.



Type of crate	Dimensions (inches) <sup>1</sup>	Usual pack of melons
		<i>Number</i>
Standard.....	12 by 12 by 22½	36, 45
Pony.....	11 by 11 by 22½	45, 54
Jumbo.....	13 by 13 by 22½	36, 45
Standard flat.....	4½ by 13½ by 22½	9, 11, 12, 15
Pony flat.....	4 by 12 by 22½	9, 12, 15
Jumbo flat.....	5 by 14½ by 22½	9, 12, 15

<sup>1</sup> Outside length of slat for all sizes, 23½ inches.

The standard pony and jumbo sizes are firmly established but occasional variations are found in flat crates. The flats are used extensively in Colorado, and apparently their use is on the increase. As the melons are only one layer deep in this crate, they are easily inspected, and it is a convenient package for the retailer to handle. The pony crates have their greatest use at the beginning and at the end of the season, when the melons are small.

Although the eastern crates are known by the same names as those used in the West, they are of different construction and vary greatly in dimensions. In the western type the slats that form the ends are nailed to triangular posts; in the East the paneled head is often used. In the southeastern section the standard cantaloup crate (fig. 19) measures 12 by 12 by 22 inches, inside, with an outside length of 24 inches. This crate therefore is one-half inch longer, over all, than the western crate, and ⅛ inch shorter inside, the difference being due to the use of the paneled head.

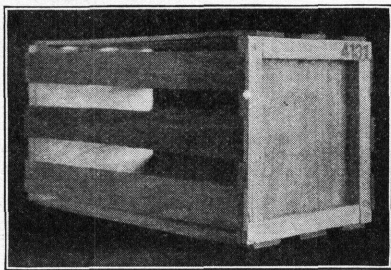


FIGURE 19.—Southeastern standard cantaloup and green-corn crate.

In Maryland and Delaware few pony crates are used. Crates with 12- by 12-inch heads are known as standard but the length of slats may vary from 22 to 26 inches. What are known as jumbo crates are made with heads 13 by 13, 14 by 14, 15 by 15, and 16 by 16 inches. The flats used in this section have heads measuring 4 by 13, 4½ by 13, and 5 by 13½ inches, the slats for both jumbos and flats varying from 23½ to 26 inches in length. The possible combinations of these various sizes of heads and lengths of slats are so many that in some seasons as many as 50 different sizes of crates have been noted from this section, a number which seems needlessly large.

One of the reasons for this great number of variations is the attempt of Maryland growers to pack always the same number of melons to the crate. As the melons in this section may vary greatly in size, this attempt to maintain a standard pack has brought about a tendency to make the crate fit the pack instead of the pack being varied to fit the crate. The present tendency in this section is toward the use of flats, which should help materially in bringing about a reduction in the number of sizes of crates.

The suggestion has been made that the problem might be solved by using flats varying in depth from  $4\frac{1}{2}$  to 6 inches, with slats either 22 or 24 inches long; that the 12- by 12-inch crate be made with a 24-inch slat and packed with 45 melons; that the 13- by 13-inch crate be made with a 22-inch slat and packed with 36 melons. If the melons run a little small, they can be packed 54 to the standard crate; if they run too large to pack 36 in the 13- by 13-inch crate, they can be packed in flats.

Much the same variation in crates which exists in Maryland is found in Michigan, except that in the latter State a great many pony crates are used. The square-end crates used in Michigan vary in even inches from 9 by 9 to 14 by 14 inches; the flats used have heads measuring  $4\frac{1}{2}$  by 14, 5 by 14, and 5 by 15 inches. The slats used on all of these crates vary in length from 18 to 24 inches. Here again the variation in sizes is due to an attempt to make the crate fit the pack. Instances have been known of large growers who are equipped with an electrically driven saw, with which slats were sawn each day to the length it is figured the size of the melons demand. This great number of variations in crate sizes prevents economy in manufacture and causes uncertainty as to exactly what is meant by such trade terms as "standard 45," or "jumbo 36". A not inconsiderable portion of the cantaloups grown in Michigan and Indiana, especially the smaller sizes, are shipped in bushel baskets and in 12-quart Climax baskets, which readily accommodate irregular sizes.

#### MISCELLANEOUS MELONS

Honey Dew melons are packed for the most part in three different crates, known as the "pony", "standard", and "jumbo" sizes. The standard and jumbo are the sizes principally used. The inside measurements of these crates are as follows:

Pony,  $5\frac{3}{4}$  by  $14\frac{1}{2}$  by  $22\frac{1}{8}$  inches.

Standard,  $6\frac{1}{2}$  by 16 by  $22\frac{1}{8}$  inches.

Jumbo,  $7\frac{1}{2}$  or  $7\frac{3}{4}$  by 16 by  $22\frac{1}{8}$  inches.

Outside length of slat for all sizes is  $23\frac{1}{2}$  inches.

Crates somewhat deeper, known in some markets as "trunks," are sometimes used. One of these,  $8\frac{3}{4}$  inches in depth, is commonly used for Casaba melons. For Persian melons one manufacturer's tariff lists 4 sizes:  $6\frac{3}{4}$  by 12 inches,  $7\frac{3}{4}$  by 14 inches,  $9\frac{3}{4}$  by 16 inches, and  $11\frac{3}{4}$  by 18 inches, the length being  $22\frac{1}{8}$  inches (all inside measurements).

#### CAULIFLOWER

Cauliflower, because of the nature of the commodity, is generally packed in crates (figs. 20 to 23, inclusive). The California standard pony crate (fig. 20) established by law in 1933, measures  $8\frac{1}{2}$  by 18 by  $21\frac{1}{8}$  inches, inside. A crate having the same width and depth but  $23\frac{1}{8}$  inches long is also used, the outside length,  $24\frac{1}{2}$  inches, being the same in both. A crate of approximately the same dimensions as the latter is in use in Oregon, measuring  $8\frac{1}{2}$  by 16 by  $23\frac{1}{4}$  inches, inside, with an outside length of slat of  $24\frac{1}{2}$  inches (fig. 21). Formerly this crate



was of the same dimensions as the California crate, but its width was reduced to afford better ventilation in transit. At least one shipping organization in Oregon has tried a still smaller crate, measuring 7 by 16 by 21 $\frac{3}{4}$  inches, inside, the slats being 23 inches long. California shippers have not found it advantageous to reduce the width of their crate, except for trimmed cauliflower, for which a

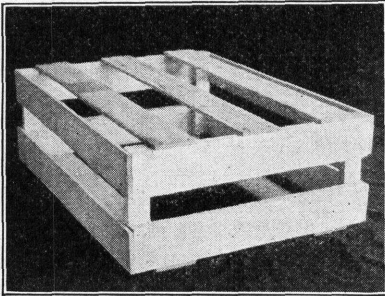


FIGURE 20.—California pony cauliflower crate.

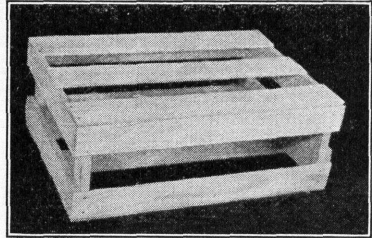


FIGURE 21.—Oregon pony cauliflower crate.

typical crate measures 6 $\frac{3}{4}$  by 12 $\frac{1}{2}$  by 20 $\frac{1}{2}$  inches, inside. Colorado shippers use a crate of the same size as is used in California. From 12 to 15 is the usual number of heads packed in this pony size.

One of the most common and satisfactory of the eastern cauliflower containers is the New York cradle crate (fig. 22), which is used principally in the western part of the State. This crate affords plenty of ventilation in transit because of its shape, and is an attractive sale package, as the heads can be seen from either the top or the bottom.

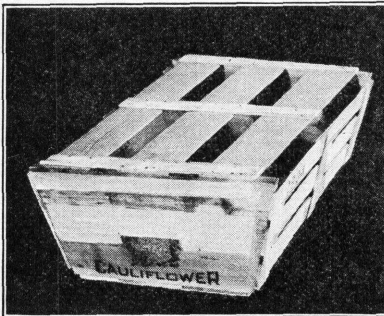


FIGURE 22.—New York cradle cauliflower crate.

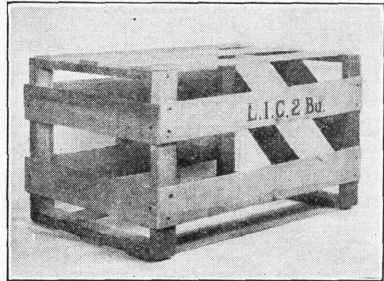


FIGURE 23.—Long Island cauliflower crate.

Its inside dimensions are: Depth, 8 inches; width, 13 $\frac{1}{2}$  inches at bottom, 18 inches at top; length, 22 $\frac{3}{8}$  inches.

An entirely different crate (fig. 23) is used in the Long Island cauliflower section. Although this crate has been in use for many years, there still exists a difference of opinion as to its dimensions. Some manufacturers report the depth and width as 13 by 15 inches, whereas others report 13 $\frac{1}{2}$  by 15 $\frac{1}{2}$  inches, the length of slat being uniform at 23 inches. This crate does not seem to have commended itself to any growers other than those on Long Island. The Catskill Moun-



tain section uses several different types of crates and has not as yet settled on any one as standard.

Michigan uses a crate measuring 8 by 19½ by 27½ inches, inside, packing in it from 12 to 16 heads, but its use is not extensive.

### CELERY

Celery must of necessity be shipped in crates and boxes designed especially for it. It may be packed in the rough, or it may be trimmed, washed, and bunched. The greater portion is shipped from the producing sections in the rough, and is trimmed, washed, and bunched by city distributors. Carload shipments of celery are made from 14 States; the most important shipping sections are found in California, Florida, Michigan, and New York, which shipped 17,744 of the 18,390 carloads that moved in 1933. For practical purposes, therefore, the question of crates for rough celery resolves itself into consideration of the sizes used in these four States.

The California crate (fig. 24), sometimes referred to as the full sized or standard crate, measures 22 by 24 by 20¾ inches, inside. Variations are sometimes made to allow for differences in the height of the celery, so that the crate may be 20 or 24 inches in height instead of 22 inches. More recently a "half crate", approximately 11 by 20¾ by 22 or 24 inches, inside, has come into use in California. The crate used to the greatest extent in Michigan and New York (fig. 25) is generally called the "two-thirds crate." New York has by law fixed the inside dimensions of this crate as 22 by 16 by 20¾ inches. The Florida crate (fig. 26), sometimes called the "one-half crate" or "10-inch crate", measures 20 by 10 by 22 inches, inside, and is used for the shipment of all Florida celery, no variation being made in the height to adjust it to differences in the height of the celery. Florida

shippers are the only ones who make a practice of sizing their rough celery, which they pack 3, 4, 6, 8, or 10 dozen stalks to the crate. One exception to the standard Florida crate has been noted at Sanford and at Sarasota, where a crate measuring 19 by 9 by 22 inches, inside, was used by one shipper. By trimming the celery more closely he was able to pack the same number of stalks in this crate as in the larger. This practice is not generally popular.



FIGURE 24.—California-Colorado celery crate.



FIGURE 25.—New York standard celery crate, used also in Michigan.

A great number of sizes of crates have been and still are used for rough celery in other sections, but it is believed that the tendency is toward the adoption of some one of the three mentioned. An exception is the crate used in Colorado, now coming into some importance as a celery section. This crate is about halfway between the California and the New York-Michigan crate, measuring 22 by 21 by 19 $\frac{1}{2}$  inches, inside.

#### WASHED CELERY

Michigan is the principal State using special containers for washed celery. Both boxes and crates are used. The crate is known as the "hi-ball", and is standardized only as to its ends, which measure 12 by 18 inches. The slats vary in length from 8 to 28 inches, by 2-inch steps. Celery packed in these crates is sold by the dozen bunches, and the variations in length are used to fit the crate to the number of dozens it is desired to pack.

The boxes used are called flats and squares. The flats are 14 inches wide and vary in depth from 5 to 7 inches and in length from 16 to 24 inches. The squares have ends measuring 9 by 9 inches and vary in length from 12 to 20 inches, by 2-inch steps. Celery in these boxes is usually sold by the box.

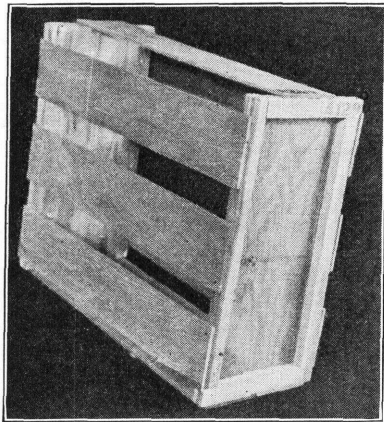


FIGURE 26.—Florida standard celery crate.

The diversity of sizes in these crates and boxes is due largely to the demands of wholesale receivers for different quantities and different sizes of celery from time to time throughout the season. Manufacturers are anxious to see standardization brought about, and the growers would be willing to conform to any agreement as to standard sizes reached by the wholesale receivers. Until such an agreement is reached, or until the growers and manufacturers decide on certain standard

sizes and stick to them, the present condition probably will continue. It is believed that one size of box measuring 5 by 14 by 21 inches, inside, is all that is necessary for celery that is packed loose. For bunched celery three different sizes of hi-ball crates probably would be necessary, measuring 12 by 18 by 10, 12, or 22 inches, inside, with an outside length of slat of 12, 14, or 24 inches.

Special crates for washed celery are not used to any extent in the other principal shipping sections. New York uses the California standard crate, the two-third, or New York, crate, and the one-half, or Florida, crate. Florida ships its washed celery in the same crate as used for rough stock. Colorado uses no crates for its washed celery, but ships it tied in bunches in carloads of mixed vegetables.

#### CHERRIES

The use of boxes for the shipment of cherries is largely confined to the Pacific coast and Rocky Mountain States, which in 1933 shipped more than 80 percent of the carload shipments of this fruit.



Much confusion has existed as to the sizes of cherry boxes, and as many as 15 different specifications have been reported. Attempts to pack a certain number of pounds to a box have undoubtedly been responsible for variations in specifications. For instance, Utah shippers one year contracted to sell cherries on the basis of 15 pounds to a 3-inch box, but found that this box held 16 pounds when packed loose or 17 pounds when packed tight. As a result they

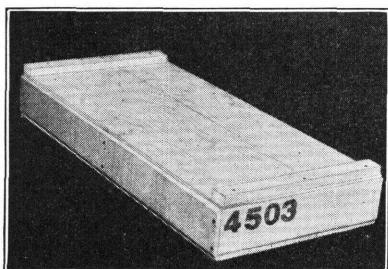


FIGURE 27.—California eastern cherry box.

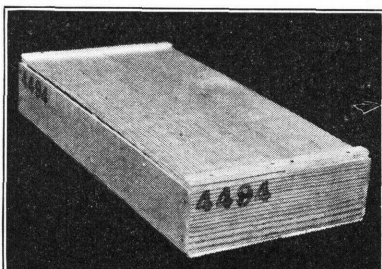


FIGURE 28.—California Lambert cherry box.

decided the next year to use a  $2\frac{3}{4}$ -inch box. In 1927 they shipped most of their cherries in boxes measuring  $2\frac{3}{8}$  by  $11\frac{1}{2}$  by  $18\frac{1}{4}$  inches, inside, and marked, "14 lbs. net." One shipper, however, used a box measuring  $3\frac{3}{8}$  by  $10\frac{1}{4}$  by 15 inches, inside.

California recognizes five different standard cherry boxes, three of which are used exclusively for cherries, the eastern box (fig. 27),

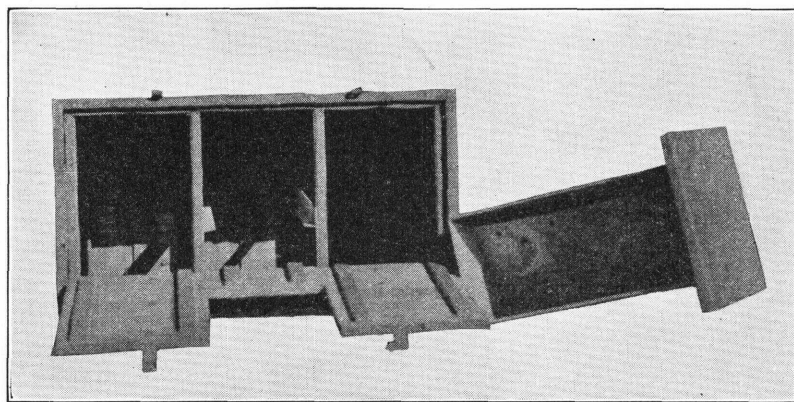


Figure 29.—Pony refrigerator used in California for cherries and figs.

measuring  $2\frac{3}{4}$  by 9 by 18 inches, inside, and the Lambert box (fig 28) measuring 3 by  $9\frac{3}{4}$  by 18 inches, inside and another  $4\frac{1}{2}$  by 9 by 18 inches, inside. The State of Washington officially recognizes two boxes, one, the eastern box, which they call the "10-pound box",  $2\frac{3}{4}$  by 9 by 18 inches, and the other which is the same as the California  $4\frac{1}{2}$ -inch box, and which they call the "20-pound box." Idaho recognizes the two boxes established by Washington, but provides also for



a 15-pound box, measuring 3 by 11½ by 18½ inches, inside. It will thus be seen that the 4½-inch box is common to all three of these States, and agreement on standards for one or two additional sizes may eventually be brought about. Oregon has not adopted any standards for cherry boxes.

Some California shipping organizations use a pony refrigerator for sending cherries to Atlantic-seaboard and southern markets. This box (fig. 29) holds 12 boxes, which measure 2½ by 9 by 18 inches, inside. It is so constructed that the ice compartment, having a capacity of 50 pounds, can be removed for re-icing without opening the chambers containing the cherries. Good results are said to have been obtained in shipping cherries by this method.

In eastern States, notably Michigan and Wisconsin, cherries are packed in the 16-quart American or 16-quart Hallock berry crate. In New York, New Jersey, Maryland, and Pennsylvania the 32-quart American berry crate is used. In these States some cherries are marketed in the 4- and 12-quart Climax baskets.

### CITRUS FRUIT

Two orange boxes are in common use—the California box, which holds 1.47 bushels, and the Florida box, which contains 1.6 bushels (figs. 30 and 31). The Florida box has been standardized by law

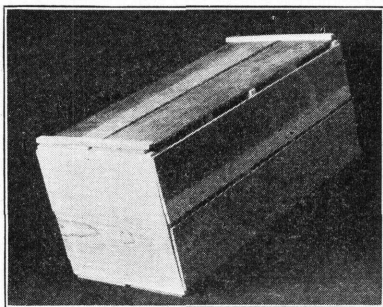


FIGURE 30.—California orange box.

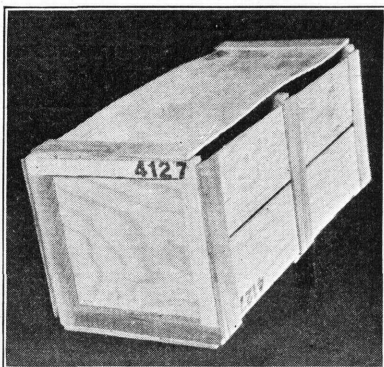


FIGURE 31.—Florida orange and grape-fruit box.

in Florida and Texas for several years, and California in 1927 made the accepted dimensions of its orange box a matter of law. The essential difference in the two boxes is in the size of the heads; the California heads measure 11½ by 11½ inches, and the Florida heads measure 12 by 12 inches. Whatever the original cause of this slight difference, it should be borne in mind that Florida uses the panel head, whereas California uses a solid head, which, if made of one piece, can hardly be cut wider than 11½ inches from the standard 12-inch board. From time to time there has been discussion of the desirability of adopting one standard orange box, but the difference in the method of construction and the fact that the packs now in use have been worked out on the basis of the present measurements would probably defeat any attempt to bring about uniformity. Fur-

thermore, citrus fruit as packed in crates is sold by numerical count and not by measure. Recently extensive use has been made of "tub" baskets and open-mesh, 5-, 8-, and 10-pound bags for Florida citrus fruit.

A half size of the Florida orange box, called a strap, and used for tangerines, has been standardized by law in Texas, and by agreement in Florida. The full-sized box is used for grapefruit. California has also standardized a half size of its orange box and has adopted standard and jumbo lemon boxes and half sizes of each. The following are the dimension specifications for the various citrus boxes.

Type of box	Inside dimensions (inches)	Outside length of slat	Capacity
		<i>Inches</i>	<i>Cubic inches</i>
Florida orange.....	12 by 12 by 24.....	27	3,456
Florida one-half orange.....	6 by 12 by 24.....	27	1,728
California orange.....	11½ by 11½ by 24.....	26	3,174
California one-half orange.....	5¾ by 11½ by 24.....	26	1,587
California standard lemon.....	10 by 13 by 25.....	27	3,250
California one-half standard lemon.....	5 by 13 by 25.....	27	1,625
California jumbo lemon.....	11½ by 13½ by 25.....	27	3,754.68
California one-half jumbo lemon.....	5¾ by 13½ by 25.....	27	1,877.34

#### CRANBERRIES

Cranberry containers at present are based almost entirely on the standard cranberry barrel established by act of Congress in 1915. This law fixes such dimensions as to produce a barrel with a cubic content of 5,826 cubic inches. This barrel is designed, not to hold a certain quantity by dry measure, but to hold 100 pounds of cranberries. The law makes provision for subdivisions known as the third, half, and three-quarters barrel. There has not been any great use of the smaller barrels, but boxes of the one-fourth, one-third, and one-half barrel sizes have come into extensive use.

The standard cranberry barrel has been adopted by law in the District of Columbia, Illinois, Massachusetts, Michigan, New Jersey, Oregon, Virginia, and Wisconsin. Five States (Massachusetts, New Jersey, Oregon, Washington, and Wisconsin) have provided by law for standard cranberry boxes. The box adopted by Massachusetts and New Jersey has inside measurements of 7½ by 12 by 22 inches, with a cubic content of 1,980 inches. As a one-third cranberry barrel contains 1,942 cubic inches, this box is approximately a one-third cranberry-barrel box. In addition, New Jersey seems to permit the use of a 1-bushel box.

Oregon provides for the use of cranberry boxes of the capacity of one-half or one-third cranberry barrel. Washington specifies that the cranberry box shall have the capacity of 1,942 cubic inches, or one-third cranberry barrel. Wisconsin specifies a 1-bushel box as standard for cranberries.

The boxes generally used for cranberries in the East have not been adopted as a legal container by any State but have come into use as a matter of agreement on the part of organizations that handle and ship this commodity. These are the one-half and one-fourth cranberry-barrel boxes (fig. 32). Inside measurements of the former are 10½ by 14 by 20 inches, giving it a cubic content of 2,913.75 cubic

inches, or only three-quarters of a cubic inch more than the one-half cranberry barrel. The one-fourth cranberry-barrel box, a more recent introduction, has become popular. One of these has inside dimensions of  $9\frac{1}{4}$  by  $10\frac{1}{2}$  by 15 inches, and another, of  $9\frac{1}{2}$  by 11 by  $13\frac{1}{16}$  inches, giving them a capacity of 1,456.5 cubic inches, the equivalent of that of a one-fourth cranberry barrel.

In spite of State laws on the subject, the specifications for cranberry boxes reported from the Pacific coast do not provide for boxes that conform exactly to the capacity standards set up. The one-third cranberry-barrel box, which seems to be used to some extent in both Washington and Oregon, measures  $7\frac{1}{2}$  by 12 by  $21\frac{3}{4}$  inches, inside. This gives it a cubic content of 1,957.5 cubic inches, or 15.5 cubic inches in excess of the one-third cranberry barrel, a difference which is not material. A one-half cranberry-barrel box which has been used in Washington measures  $11\frac{1}{4}$  by 12 by  $21\frac{3}{4}$  inches inside, giving it a cubic content of 2,936.25 cubic inches, which is an excess of 23.25 cubic inches over the half cranberry barrel.

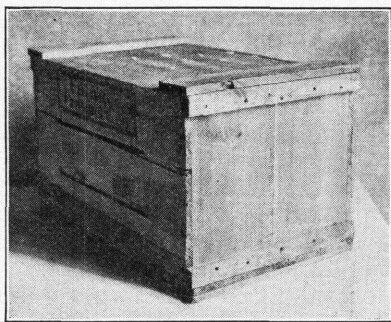


FIGURE 32.—One-half cranberry-barrel box.

In Oregon a one-half cranberry-barrel box measuring  $11\frac{1}{2}$  by 13 by 20 inches inside, has been used, which has a cubic content of 2,990 cubic inches, or 77 cubic inches in excess of the half cranberry barrel. This excess is more than 1 dry quart, and probably represents at least an additional pound of cranberries. A one-quarter barrel box used in Oregon, measuring  $7\frac{1}{4}$  by  $10\frac{1}{4}$  by 18 inches, inside, contains 1,403 cubic inches, or 53 cubic inches less than a one-fourth barrel.

It is possible that some confusion may exist regarding the quantity of cranberries packed in a box, because of differences in methods of packing. Eastern growers pack the box full, and then force the bottom in place. In this way they put approximately 50 pounds of cranberries in the one-half cranberry-barrel box. Growers who do not use this method of packing do not get as great a weight of cranberries in the package. At times comments are made that the eastern box holds a greater quantity of cranberries, although the cubic content is not so great as that of some of the western boxes. The differences in methods of packing undoubtedly are responsible for such comments.

### GREEN CORN

Green corn from Florida and other Southeastern States is shipped in bushel crates 12 by 12 by 15 inches, inside; various types of  $1\frac{1}{2}$ -bushel crates one of which is 12 by 12 by  $22\frac{1}{2}$  inches, inside; the half-barrel cabbage crate; and the celery crate.

The standard cantaloup crate is used in North Carolina and some other parts of the South (fig. 19). The bushel basket and the barrel are used in some sections; the basket is popular in Texas.

A crate used to some extent in the Southwest is 12 by 12 by 20 inches, inside. From the Pacific coast three sizes of corn crates have



been reported—a 5-dozen crate measuring  $7\frac{1}{2}$  by 16 by 25 inches, inside; a 6-dozen crate measuring 13 by 11 by 14 inches, inside; and a 12-dozen crate measuring 13 by 11 by 29 inches, inside.

### CUCUMBERS

Florida is by far the largest shipper of cucumbers. They are packed in bushel hampers and tub baskets and in the 12- by 12- by 15-inch bushel crate. A crate measuring 9 by 13 by 22 inches, inside, and the  $1\frac{1}{2}$ -bushel crate, measuring 12 by 12 by  $22\frac{1}{2}$  inches, inside, are also used. The bushel hamper is popular in the Carolinas. In Louisiana a special box measuring  $7\frac{3}{4}$  by  $10\frac{3}{4}$  by  $21\frac{1}{2}$  inches, inside, is used. The tendency in other sections is to use the package most popular for other commodities. From Virginia north, bushel hampers and baskets are used to a great extent; 12-quart Climax baskets and splint baskets are used in Illinois, Indiana, and Ohio, and lug boxes in California.

### FIGS

California fresh figs are shipped in shallow boxes in which fillers are placed which provide a cell for each fig. The number of cells used depends on the size of the figs to be packed. These boxes vary in size, two common sizes measuring 2 by 11 by  $16\frac{1}{8}$  inches, and 2 by  $11\frac{1}{2}$  by  $18\frac{3}{8}$  inches, inside. They hold approximately  $5\frac{1}{2}$  and 7 pounds of figs, respectively. Figs have also been shipped from California in the pony refrigerator described in the discussion of cherry containers. Because of the ripeness of the fruit, figs do not carry as well in the "reefer" as do the cherries. Texas figs, when shipped fresh, are packed in the 4-basket tomato crate. As a rule such shipments are made only to points which can be reached in from 10 to 16 hours by express.

### GRAPES

Different types of containers are used for the shipment of the American type of grapes, grown principally in the eastern part of the country, and the European type, grown mainly in California. For the American type of grape the principal type of container is the Climax basket, of which there are three sizes—the 2-, 4-, and 12-quart (fig. 33). These sizes, with their capacities and measurements, were established by law by the enactment of the United States Standard Container Act. Wire handles have been largely used for the 2- and 4-quart sizes for many years. Practicable wire handles for the 12-quart size have been introduced within recent years and have been gaining in popularity.

Experiments have been made in the shipment of eastern and southern fancy table grapes in 2-, 3-, or 4-quart till baskets enclosed in carrier crates. These have included such combinations as the use of twelve 2-quart tills in the 6-basket carrier, nine 3-quart tills in a modification of the 32-quart berry crate, four 3-quart square tills in a flat crate, three 4-quart tills in half of a 6-basket crate, as well as the standard 6-basket crate containing six 4-quart till baskets. No one of these containers has as yet come into sufficient use to be looked on as a common shipping package.

The bulk of the vinifera (European) grape crop of California is shipped not in baskets but in boxes, commonly referred to in California

as lug boxes. In addition, some grapes are shipped in small baskets enclosed in crates, and some in kegs and drums. The kegs and drums are used for grapes packed in sawdust, cork, or similar material, and some lug boxes are used for this type of pack. Formerly the most popular lug box for shipping grapes was known as the Los Angeles lug, and this container was used without a cover. With the great growth in California shipments, the loading of boxes without covers has decreased, and the tendency now is toward the use of covers on all grape lugs.

Since the shipping of vinifera grapes is confined almost entirely to California, it would seem that a somewhat restricted and definite standardization of containers would have been accomplished. For many years there has been an attempt in California to bring about the standardization of grape containers, but the demands of shippers' organizations for variations in sizes has resulted in a decidedly chaotic situation.

In 1927 the State legislature attempted to bring some order out of this condition by adopting new standards, but the California Stand-

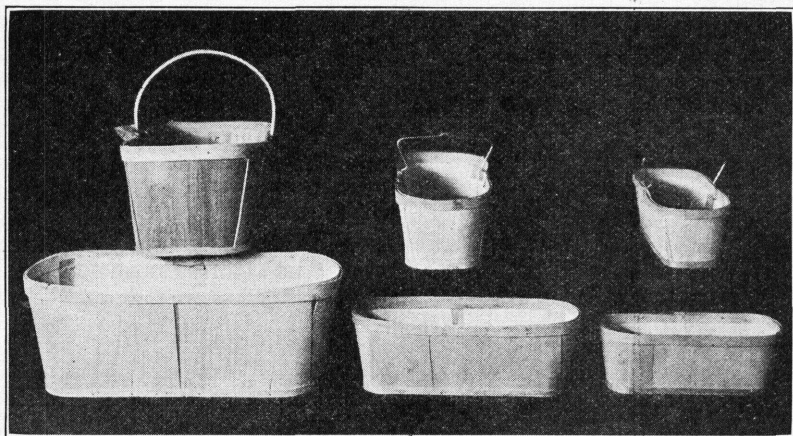


FIGURE 33.—Climax baskets, 12, 4, and 2 quarts.

ardization Act of that year has been amended several times since then. As amended in 1933 the act provides for a number of permissive standard containers, which, if used, may be marked "standard." These include the United States standard 4-quart Climax basket and the 3-quart till basket. For the sawdust packs there is a standard grape drum and a standard grape keg each containing 2,642 cubic inches, and two lugs,  $7\frac{3}{4}$  and 11 inches deep, by  $13\frac{1}{2}$  inches wide by  $16\frac{1}{8}$  inches long, inside. Four crates to accommodate the till baskets are provided, 4,  $4\frac{1}{4}$ ,  $4\frac{1}{2}$ , and  $4\frac{3}{4}$  inches deep by 16 inches wide by  $16\frac{1}{8}$  inches long, inside (fig. 48). Two sizes of grape lugs (fig. 34) are provided,  $5\frac{1}{16}$  and  $5\frac{1}{4}$  inches deep, the width and length being the same as in the sawdust lugs. The act provides that the heads in the first of these shall be made up of two pieces, one  $5\frac{1}{16}$  inches and the other a cleat eleven-sixteenths of an inch. The second may be used with or without an  $\frac{1}{16}$ -inch cleat. The actual depth therefore is  $5\frac{1}{4}$  inches in the first and either  $5\frac{3}{4}$  or  $6\frac{1}{16}$  inches in the second. The so-called "display lug" is restricted as to total depth to  $5\frac{1}{4}$  inches.



The heads of this lug are usually made of two pieces, one  $4\frac{1}{2}$  and the other  $1\frac{1}{4}$  inches wide. In one respect all of the various lugs and crates are uniformly standard, that is, the outside length is  $17\frac{1}{2}$  inches.

It will be seen that California provides for 11 different permissive standard containers for grapes, but that this large number may be further complicated by the fact that others may be used if they are not marked "standard." One such nonstandard lug that is extensively used is the so-called "no. 2" lug,  $4\frac{3}{4}$  inches deep which may be used with or without a cleat. When the cleat is used, it is obvious that the boxes can be packed level with the cleat, and that when they have reached the receiving market the cleat can be removed and the box appear full even though considerable settling may have occurred.

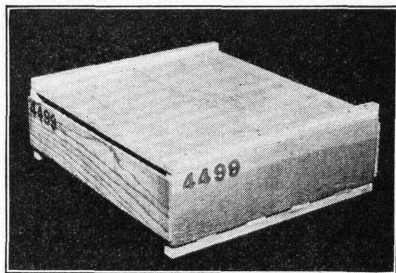


FIGURE 34.—A typical California grape lug or box.

### LETTUCE

Lettuce is marketed in a great many different styles and sizes of crates, boxes, and baskets, but most of the carload shipments originate in Arizona, California, Colorado, Idaho, New York, and Washington, which use only crates. Obviously the crate is the most important of the packages used.

The so-called Los Angeles or western lettuce crate is perhaps best known and most widely used. As originally standardized by Cali-

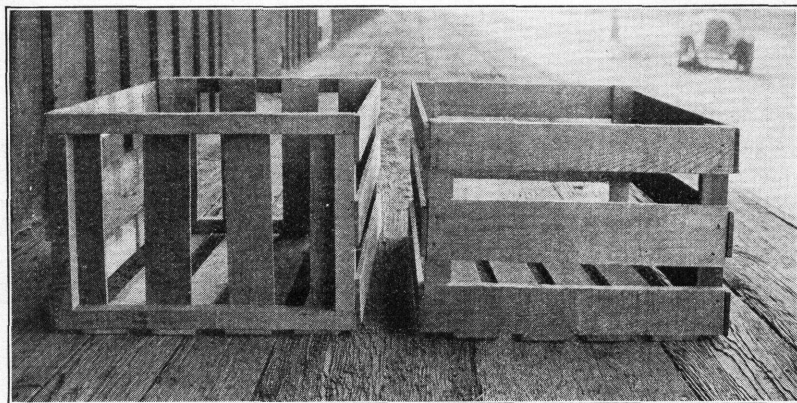


FIGURE 35.—California lettuce crates.

fornia law it was 13 inches deep, 18 inches wide, inside, with an outside length of  $24\frac{1}{2}$  inches, and a minimum inside length of  $21\frac{1}{4}$  inches. This unusual provision was to provide for two types of construction (fig. 35), the Los Angeles type being made with the end slats on the inside of the end posts and the Brawley type with the slats on the outside. Both types have certain advantages which are reflected in the new specifications revised in 1933. Two crates are now provided, one 13 and the other  $13\frac{3}{4}$  inches deep, the depth and



length inside being  $17\frac{1}{2}$  and  $21\frac{1}{2}$  inches, respectively. These crates are used for packing from 36 to 90 heads of lettuce, depending on the size of the heads. The law requires that the crate shall be conspicuously stamped with the exact number of heads contained.

What was known as the Salt Lake crate was formerly used in California to some extent. It went out of use for a number of years, but has recently been reintroduced. This crate, often referred to as the "half crate," is practically one-half the size of the larger crate and, like it, is made in two styles. The head of this crate measures 9 by 13 inches, with an outside length of  $24\frac{1}{2}$  inches.

In Arizona the California crate is used, as in Colorado, although minor variations in length are sometimes found in crates from the latter State. In Idaho a similar crate is used, with the following inside measurements: Width, 13 inches; height, 17 inches; length,  $22\frac{1}{2}$  inches. The California crate is also used in Washington, but in some instances crates with heads measuring 14 by 17 inches instead of 13 by 18 inches are used.

In New York three sizes of crates were formerly used, each designed to hold 24 heads of lettuce, but after considerable discussion, the growers decided to discard all of them and adopt a new crate measuring  $7\frac{1}{2}$  by 16 by 19 inches, inside (fig. 36). This crate has been made by law the standard crate of New York, and it is now quite generally used in the Atlantic Coast States and Florida.

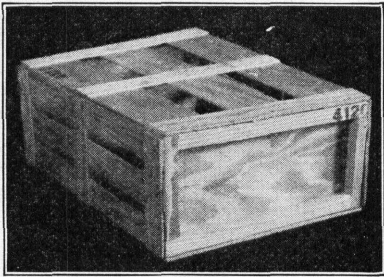


FIGURE 36.—New York standard lettuce crate.

The bulk of the head lettuce is marketed in crates, but much of the Florida crop moves in the 48-quart hamper, and in North Carolina the 40-quart hamper is used. Instances have been known of the use of round stave baskets, splint baskets, and barrels.

Leaf lettuce is marketed in a variety of containers, some gardeners using lug boxes and second-hand vegetable, sugar, and flour barrels. The hothouse-lettuce growers of northern Ohio use a square-cornered splint basket, holding 10 pounds of leaf lettuce. Smaller-splint baskets, holding 3 pounds of leaf lettuce, are also used by some growers. Some leaf lettuce is marketed in  $\frac{3}{4}$ -bushel and 1-bushel round stave baskets, holding approximately 10 and 15 pounds, respectively.

#### MUSHROOMS

The principal shipping container for mushrooms is the 4-quart Climax basket, holding approximately 3 pounds. A 4-quart square-cornered splint basket is used by growers around Cleveland, Ohio. Mushroom growers have been dissatisfied with the 4-quart containers and have sought a satisfactory container, holding but 1 pound, the idea being to put this commodity on the market in a package that could be sold intact to the consumer. Paper cartons holding 1 and 2 pounds are in use. The Standard Container Act of 1916 was amended in 1934 to provide a standard 1-pound Climax basket for mushrooms.



## OKRA

As only a limited quantity of okra is raised, most of the shipments are made by express, and the package most convenient at the time is the one generally used. The greater number of these shipments originate in the southeastern section of the country, where the common packages for okra are the bushel hamper and basket, and the 1-bushel crate. The quantity of okra shipped from Louisiana and Texas is so small that no container can be designated as a favorite, but the bushel round stave basket is used in Texas to some extent.

## ONIONS

The 50-pound sack and the Texas 1-bushel onion crate are the two most popular containers for onions. The 50-pound onion sack generally measures  $18\frac{1}{2}$  by 29 inches. The 1-bushel folding onion crate has been established by law in Texas for many years, and has come to be recognized throughout the United States as the standard

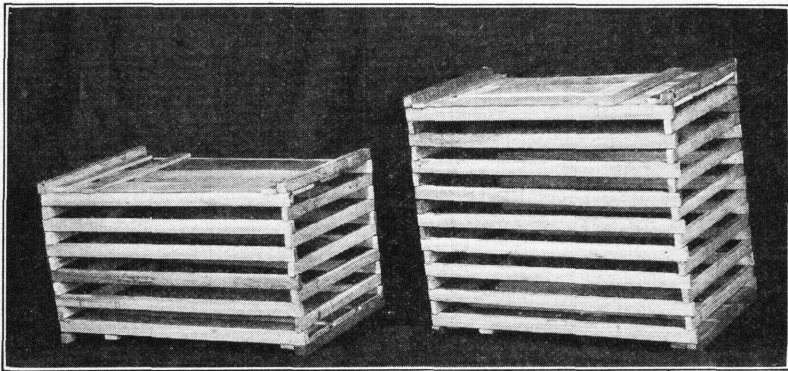


FIGURE 37.—Standard onion crates: Left, 1 bushel; right,  $1\frac{1}{2}$  bushels.

onion crate (fig. 37). Its inside dimensions are  $9\frac{1}{16}$  by  $11\frac{1}{16}$  by 19 $\frac{3}{8}$  inches. One or the other of these two containers, the 50-pound sack or the 1-bushel crate, is used in practically every onion-growing section of the country, but other bushel crates are used for onions. In certain instances this commodity has been shipped in hampers and round stave baskets.

Many Egyptian and Spanish onions are shipped into the United States. The former are packed in jute bags which hold about 112 pounds. Spanish onions are packed in cases, half cases, and crates, containing 125 to 130, 65, and 37 to 40 pounds, respectively. A common type of crate for Spanish onions measures  $6\frac{3}{4}$  by 18 by 18 inches, outside and holds 50 onions—20 in one compartment and 30 in the other. Another crate measures  $10\frac{1}{2}$  by  $14\frac{3}{4}$  by 39 inches, outside, and holds 150 onions.

## PEACHES

The western peach box has the same width and length as the pear and apple boxes ( $11\frac{1}{2}$  by 18 inches), but there is a considerable variation in depth. Manufacturers' specifications list depths varying from



$3\frac{1}{2}$  to 5 inches in half- and quarter-inch intervals (fig. 38). The most popular height is  $4\frac{1}{2}$  inches and the 4-,  $4\frac{1}{4}$ -, and  $4\frac{3}{4}$ -inch heights are used to a large extent. In Colorado the 4- and  $4\frac{1}{2}$ -inch are the sizes in the greatest demand. In California the  $4\frac{1}{4}$ -,  $4\frac{1}{2}$ -, and  $4\frac{3}{4}$ -inch sizes are popular, the  $4\frac{1}{4}$ -inch size for packing the early small-sized peaches and the  $4\frac{1}{2}$ - and  $4\frac{3}{4}$ -inch sizes for the midseason and late varieties. A 5-inch box which contains three layers of peaches is sometimes, but not often, used in Colorado. This size is also used for pears in this section instead of the half pear box.

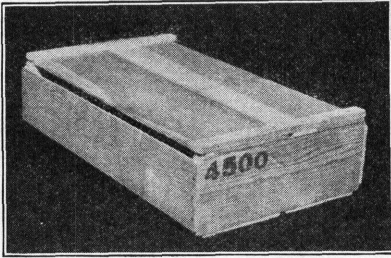


FIGURE 38.—Typical western peach box.

only complicates the situation on the market. In some sections the slats are cut both  $19\frac{1}{2}$  and  $19\frac{3}{4}$  inches. Since the tops and bottoms of the peach boxes are interchangeable with the pear and apple boxes, these slats should all be cut the same length. This matter has been discussed in more detail under apple boxes.

In that part of the country east of the Rocky Mountains the containers used for shipping peaches are the 6-basket crate, the 1-bushel round stave basket, the 1-bushel straight-side or tub basket, and various sizes of hampers. The 6-basket crate was formerly the most generally used, but has given way, to a great extent, to the round stave and tub baskets, but approximately 50 percent of the Georgia crop moves in the 6-basket crate, and it is used to a considerable extent in North Carolina, West Virginia, and Maryland, and to some extent in New Jersey.

The 6-basket crate (fig. 39) contains six 4-quart till baskets, placed in two tiers, with a dividing tray to prevent the fruit in the lower tier from being bruised by the pressure of the upper baskets. The commonly accepted inside dimensions of this crate are 10 by 11 by 22 inches, but a  $10\frac{1}{2}$ -inch depth is used in Maryland. It is frequent practice to use a half-inch cleat under the cover of the 10-inch crate, in order to take care of the high bulge with which it is commonly packed. Packing schemes have been developed for the 6-basket crate, so that it may be packed with a definite number of peaches, depending on their size.

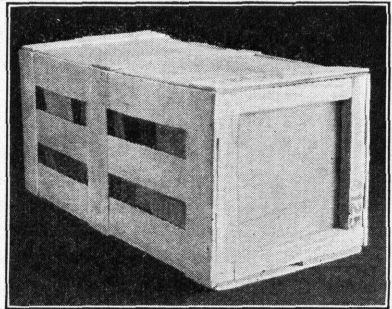


FIGURE 39.—Six-basket peach and tomato crate.

The 1-bushel round stave basket came into use in Georgia as a container for peaches as a result of the high price of packing-house labor. The baskets were jumble packed and ring faced. When the straight-side or tub basket with a removable bottom came on the market a few years ago it was soon tried in Georgia because it afforded an opportunity of packing through the bottom, thus making the ring face the first operation. Subsequent development of the various ring-packing devices has enabled shippers to accomplish the same result without the use of removable bottoms. Consequently, although the loose-bottom basket is still used, all types of tub baskets are now used in the Southeast (figs. 3 and 4). The  $\frac{1}{2}$ -bushel size of basket is being tried but has not been used enough for definite conclusions to be drawn.

The round stave and tub baskets are also used in Maryland, Delaware, and New Jersey, but this section continues to use many hampers. In New Jersey the 20-quart hamper is popular. It is used without a cover for trucking into Philadelphia, and other nearby markets. The 16-quart hamper is generally used in the Northeastern States. In New York, the round stave and tub baskets are used, and the 8-quart hamper or "high hat", is used at times. In Michigan the round-stave and straight-side baskets are used, and some fancy fruit is packed in the four-basket flat, which holds four 3-quart square till baskets. The western box has not come into any great use in the East, although it has been used to some extent in southeastern sections, particularly in North Carolina.

#### PEARS

The pear box has the same inside width and length as the peach and apple boxes, but it is  $8\frac{1}{2}$  inches deep. These dimensions are generally accepted in all producing sections, although the State of Washington has designated the 8-inch box as standard. A half pear box is also used, which has an inside measurement of  $4\frac{1}{2}$  by  $11\frac{1}{2}$  by 18 inches, the same size as the  $4\frac{1}{2}$ -inch peach box. A special  $5\frac{1}{2}$ -inch box for pears is provided in the California law. The width and length of the pear box correspond with those of the peach and apple boxes, so that tops and bottoms are interchangeable.

No one container can be mentioned as the distinctive one for pears in the eastern section of the country. The tendency is to use the container which, because it is used for other fruit, happens to be most easily obtainable in any particular section. In New York, which ships more pears than any other Eastern State, the round stave basket in the bushel and  $\frac{1}{2}$ -bushel sizes, the tub basket, and the barrel are used.

#### PEAS

In the eastern sections peas are shipped in bushel hampers and in bushel baskets. In the West drums were formerly used to a great extent, but the crate is now popular, and it, in some sections, is being replaced by the hamper. No definite agreement has been reached as to dimensions of western pea crates. The California crates generally have  $9\frac{1}{2}$ - or 10- by 18-inch heads, with an outside length of  $24\frac{1}{2}$  inches. The Colorado crate is of the same length, but the heads are  $10\frac{1}{2}$  or  $10\frac{3}{4}$  by 18 inches.



## PEPPERS

Only one container is used in the United States which was developed primarily for the shipment of peppers. This is the Florida pepper crate, used in that State for the shipment of peppers and eggplant (fig. 40). As it is also used for the shipment of beets, carrots, turnips, and squash, it may be considered a general-utility crate.

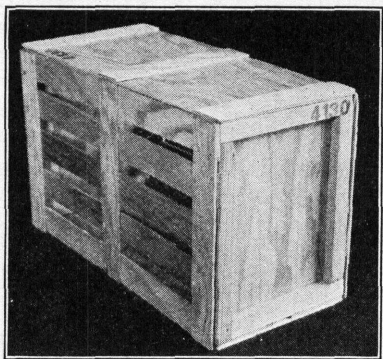


FIGURE 40.—Florida pepper and eggplant crate.

This crate was developed from the 32-quart berry crate, and originally had the same dimensions, but was made with an extra slat on each side. As first made it had a capacity of  $1\frac{3}{8}$  bushels. Both the berry crate and the pepper crate were changed somewhat in measurement, and the pepper crate became 14 by 11 by 22 inches inside, and its capacity a little more than  $1\frac{1}{16}$  bushels. Because of its use as a general-utility crate, it was again changed to hold  $1\frac{1}{2}$  bushels, a result accomplished by making it  $13\frac{3}{8}$  by 11 by 22 inches. This crate as used in Texas is 11 by 14 by  $22\frac{1}{4}$  inches inside.

In New Jersey, North Carolina, and Virginia 1-bushel and  $1\frac{1}{2}$ -bushel hampers are used for peppers. Mexico uses the Los Angeles lettuce crate with two extra slats, while Cuba uses the Florida crate.

## PINEAPPLES

The chief container for pineapples is the standard southeastern crate, measuring  $10\frac{1}{2}$  by 12 by 33 inches inside (fig. 41). This is used for shipments from Florida, Cuba, and the Isle of Pines. It is commonly made with panel ends, but some manufacturers use solid heads, although they adhere to the dimensions given.

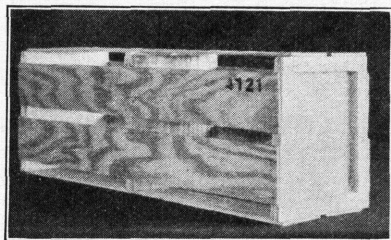


FIGURE 41.—Southeastern standard pineapple crate.

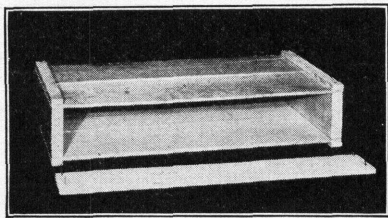


FIGURE 42.—Western prune suitcase.

## PLUMS, PRUNES, AND APRICOTS

Plums, prunes, and apricots are handled in about the same way. The favorite western package for prunes is a box known as the "suitcase" (fig. 42). Formerly this box measured  $3\frac{1}{2}$  by  $11\frac{1}{2}$  by 18 inches inside. In recent years the size of this box has been cut down, and in Washington and Idaho at present boxes  $3\frac{1}{4}$  by  $11\frac{1}{2}$  by 18 inches, inside, are used for shipments to Canada, but boxes  $3\frac{3}{4}$  by 11 by 18 inches are most commonly used



for domestic shipment. These suitcases are generally packed from the side, and the accepted net weight of prunes in the box is 16 pounds.

A recently developed display lug,  $3\frac{3}{8}$  by  $10\frac{1}{2}$  by 15 $\frac{1}{8}$  inches, inside, is usually packed with 1 or 2 faced layers backed by a jumble pack.

Another container which is used for prunes and plums throughout the Pacific coast is the four-basket crate, holding four 3-quart metal-rim baskets (fig. 43). This crate measures 16 by 16 $\frac{1}{8}$  inches, inside, and is generally 4 $\frac{1}{4}$  inches deep, although it may be 4 $\frac{1}{2}$  or 4 $\frac{3}{4}$  inches. The  $\frac{1}{2}$ -bushel round stave flat-bottom basket is now used extensively. Apricots are packed in both the suitcase and the four-basket crate, which hold approximately 15 and 20 pounds, respectively, of this fruit.

Eastern plums are shipped in various packages, but  $\frac{1}{2}$ - and 1-bushel flat bottom baskets and 4-quart and 12-quart Climax baskets are probably the most popular. Some plums are occasionally shipped in berry crates.

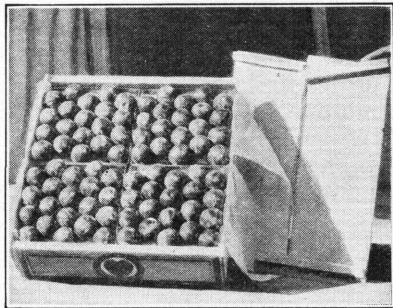


FIGURE 43.—Western four-basket crate, used for plums, prunes, apricots, grapes, and other commodities.

#### POTATOES

Potatoes are shipped in barrels, sacks, and crates and in bulk. The southeastern Atlantic seaboard uses a barrel of one type or another almost to the exclusion of other containers; at least 90 percent of the potatoes from the Eastern Shore of Maryland, south, are shipped in barrels. In Florida, the double-headed barrel (fig. 45) is used; farther north barrels with burlap tops are favored.

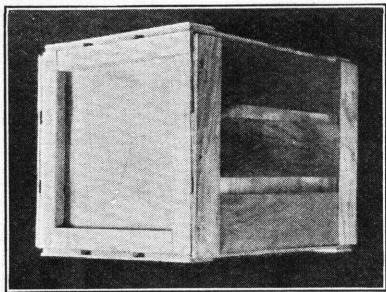


FIGURE 44.—Southeastern standard bushel crate.

The bushel crate (fig. 44) measuring 12 by 12 by 15 inches, inside, is used to some extent in Florida for early potatoes. There is probably a little use of bushel hampers for potatoes in the Florida section,

but this package is not generally regarded as suitable.

In the rest of the country the sack is the popular container. It would be almost impossible to list all the sizes that have been used, among them, the 120-, 150-, 165-, 116-, 112-, 110-, and 90-pound sizes. But there is now a definite tendency in all important shipping sections to use only the 100-pound size. Some experimental shipments have been made in consumer-size units of 10, 15, and 25 pounds.

Some shippers' organizations have packed potatoes in 15- and 30-pound and smaller sizes of corrugated cartons. Some city distributors have repacked potatoes in 15-pound corrugated cartons and in apple boxes, sizing the potatoes and packing by count.



## SWEETPOTATOES

Sweetpotatoes are shipped in hampers, baskets, crates, barrels, sacks, and in bulk. Formerly, the most commonly used crate was one measuring 12 by 12 by 18 inches, inside. This crate has been superseded to a great extent because it holds more than a bushel, and less than 5 pecks. It is still used in Texas by some shippers as a 50-pound crate. Some shippers weigh out every crate as it is re-packed after curing and storing; others weigh a certain number of crates to determine what constitutes a full pack, allowing a pound or more to take care of shrinkage in transit.

In some of the Southeastern States, for instance Georgia and the Carolinas, this crate has been replaced by the bushel (fig.44) and



FIGURE 45.—Stave barrel used for potatoes and sweetpotatoes.

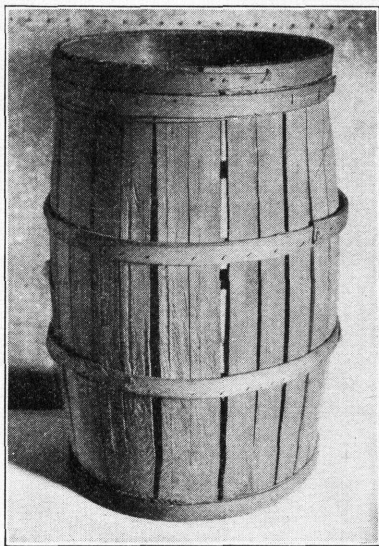


FIGURE 46.—Open-stave barrel.

5-peck crates. The heads of these crates measure 12 by 12 inches, the inside length of the bushel crate being 15 inches, and of the 5-peck crate,  $18\frac{3}{4}$  inches. Some shippers prefer a bushel crate having a smaller head and greater length. For this reason special-folding sweetpotato crates have been introduced in Arkansas and Tennessee. These have the following inside dimensions:  $10\frac{1}{4}$  by  $10\frac{1}{4}$  by  $20\frac{1}{2}$ ;  $10\frac{5}{8}$  by 11 by  $18\frac{1}{2}$ ; and  $9\frac{1}{16}$  by  $11\frac{1}{16}$  by  $19\frac{5}{8}$  inches.

Hampers (fig. 7) are used to some extent in all of the Southern States but are probably more popular in those in the lower Mississippi Valley. This section uses the 1-bushel hamper for sweetpotatoes. The circular hamper is the type commonly used, but an oval shape has been developed for sweetpotatoes and has given satisfaction.

Within recent years the 1-bushel round stave basket (fig. 3) has come into use for shipping sweetpotatoes, especially in Texas, where



it has replaced the crate to a great extent. The straight-side or tub basket has proved as well adapted to this commodity as to many others. Both of these baskets as well as the hamper have some vogue with the New Jersey and Delaware sweetpotato shippers.

Barrels are popular containers in the northeastern sweetpotato section. Three styles are used—stave, open-stave, and basket barrels (figs. 45 to 47). In some districts basket and open-stave barrels with burlap covers are used in shipping green stock direct from the field. Double-headed stave barrels are often used during the winter months. These barrels are, or should be, the United States standard barrel, of 7,056 cubic inches.

In the southern section little use has been made of barrels except in a few districts that ship green stock early in the season. Stave and open-stave barrels with burlap covers are the ones used. Some shippers chop holes in the staves to permit ventilation.

### RHUBARB

Rhubarb is not shipped in sufficient quantities to induce much work in the development of a distinctive container. It is probable that most growers use whatever packages happen to be convenient at the time, but a few special rhubarb containers have been reported.

Illinois uses a crate with square ends running from 19 to 19½ inches long, inside. There is also some variation in the size of the heads, which run from 10¾ by 10¾ to 11½ by 11½ inches. A recent specification gives 10¾ by 10¾ by 19¼ as inside dimensions.

Colorado uses a box measuring 7¼ by 11½ by 21¾ inches, and on the Los Angeles market boxes have been found measuring 7¼ by 11½ by 24 inches, inside. No such specifications have been found in any manufacturer's tariff, and it is probable that these boxes are made on special order. The old California apple box, 9¾ by 11 by 20¾ inches, inside, is also used for rhubarb. The section around Walla Walla, Wash., uses two sizes of boxes, one for field run and the other for fancy stock. The former measures 7½ by 16 by 18 inches, inside, and the latter 6½ by 12 by 18¼ inches. A paper carton, 2¾ by 4 by 17¾ inches, which holds 2 pounds of rhubarb has come into use in Eastern States.

### TOMATOES

The containers most largely used for the shipment of tomatoes are the 6-basket crate, the 4-basket flat, the California box, the New Jersey 20-quart crate, and the Climax basket. In the first two the

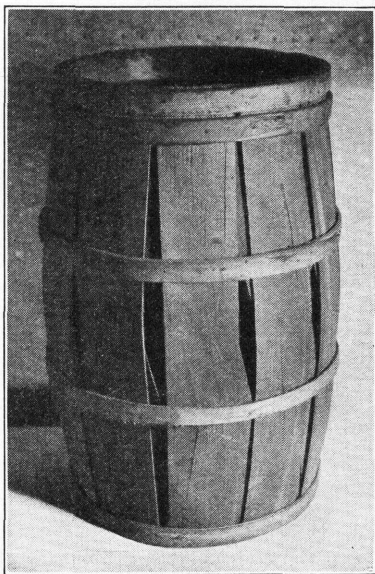


FIGURE 47.—Basket barrel.



tomatoes are packed in till baskets; in the others they are packed without subcontainers.

The 6-basket crate (fig. 48) is the same as the one used for the shipment of peaches from Georgia; but the six 4-quart till baskets that it holds are, in some sections, of somewhat different dimensions. This crate is used for shipping tomatoes from Florida, and for a part

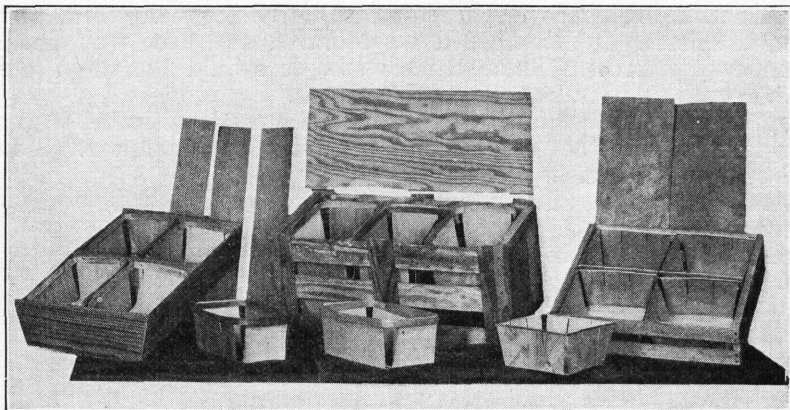


FIGURE 48.—Crates used for tomatoes, peaches, and other small fruits. Left, 4-basket crate from the lower Mississippi Valley. Center, 6-basket crate for tomatoes and peaches. Right, Western 4-basket crate used for tomatoes in some sections, and for grapes and other commodities.

of the shipments from Tennessee, Texas, and Mississippi. Its use is confined largely to sections where the tomatoes are brought to packing houses, as the necessary uniform sizing of the fruit and the system of arrangement in the tills require that the operation be performed by experienced workers under close supervision.

The 4-basket flat (fig. 48) contains four 3-quart till baskets. This crate is  $4\frac{1}{2}$  inches deep,  $13\frac{1}{2}$  inches wide at the top,  $11\frac{1}{2}$  inches

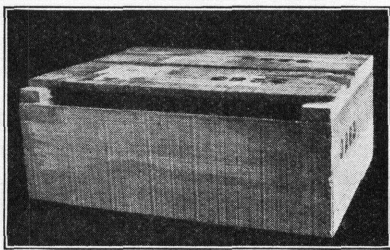


FIGURE 49.—Los Angeles lug used for shipping tomatoes.

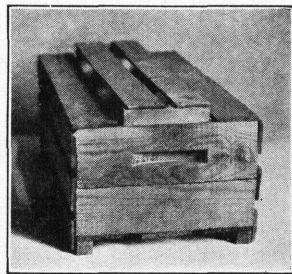


FIGURE 50.—New Jersey 20-quart tomato crate.

wide at the bottom, inside, and has an outside length of 22 inches. A center head is used, giving two compartments each  $10\frac{5}{8}$  inches long, inside. This crate was popular in the Mississippi, Texas, and Illinois sections, and to a somewhat less extent in Tennessee and Missouri, and was frequently used for packing on the farm.

The California box, known as the Los Angeles lug (fig. 49) is used for shipment from California to northern and eastern markets and for imports of Mexican tomatoes. It measures  $5\frac{3}{4}$  by  $13\frac{1}{2}$  by  $16\frac{1}{2}$

inches, with an outside length of  $17\frac{1}{2}$  inches. This box, recently introduced in Texas, Mississippi, Florida, and other tomato sections, now predominates in some of these sections. An  $\frac{1}{16}$ -inch cleat is commonly used with this crate, making the depth  $6\frac{1}{16}$  inches. Some sections of California ship tomatoes in a crate (fig. 48) holding 4 square metal-rim till baskets, containing 3 quarts, or approximately 5 pounds each. This crate has an inside width and length of 16 by 16 inches and is generally  $4\frac{1}{4}$  inches deep.

The New Jersey 20-quart crate (fig. 50) is used extensively in the Swedesboro and southern New Jersey sections. There are some variations in the dimensions of this crate, but representative measurements are  $6\frac{3}{4}$  by 11 by  $18\frac{3}{8}$  inches, inside. The raised central portion of the top is a peculiar feature, which would prevent stacking were it not for the bottom rails. This container is sometimes referred to as a 30-pound crate, since it holds approximately that weight of tomatoes. Some dissatisfaction with this crate has been expressed by New Jersey shippers, and experiments have been made with other crates.

The 12-quart Climax basket (fig. 33) is favored in shipping sections of Ohio, Indiana, and Kansas, and is used to some extent in Missouri, Illinois, and New Jersey. With the raised type of cover this basket holds about 20 pounds, and with the flat cover about 17 pounds of tomatoes. The 4-quart and 12-quart Climax baskets have had some use in western New York and in Michigan.

Among other containers which are used for tomatoes are the 20-quart brace hamper and the 8-quart market basket. The former is used in Maryland and New Jersey for trucking tomatoes to canneries, and in New Jersey for trucking to the Philadelphia market. The 8-quart square braid market basket is a common package for hothouse tomatoes in the northern Ohio section, and is used for truck, boat, and rail shipments. The 16-quart market basket is used in many sections for local deliveries of tomatoes.

#### MISCELLANEOUS FOLIAGE-TYPE VEGETABLES

Endive and escarole are shipped from Florida in  $1\frac{1}{2}$ -bushel hampers. In Louisiana they are packed in 4-bushel barrels with 50 to 60 pounds of ice in 2 layers. Texas uses the 1-bushel round stave basket, with some ice.

Parsley is shipped from Louisiana in 1-bushel hampers and in the 4-bushel barrel, with 2 or 3 layers of ice. This barrel holds about 20 dozen bunches. Texas uses the 1-bushel round stave basket for this commodity.

Spinach is shipped from Texas in the 1-bushel round stave basket, with 8 to 10 pounds of ice in the center. The Norfolk (Va.) section has always shipped in veneer barrels, but has lately shown a tendency to use the bushel basket so popular in Texas. Louisiana uses the 4-bushel barrel, packing some spinach loose and some bunched. This barrel holds from 10 to 12 dozen bunches, and 2 or 3 layers of ice are used in the barrel.

Kale is shipped from the Norfolk section in the veneer barrel and 1-bushel basket.

Brussels sprouts are generally shipped in 32-quart berry crates, and in crates and drums of approximately 1-bushel capacity.





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## MISCELLANEOUS ROOT-TYPE VEGETABLES

The containers used for beets, carrots, radishes, shallots, and turnips vary with the sections from which the shipments are made, and are usually such containers as are in common use for other commodities. These commodities are generally bunched for shipment.

For beets, Florida shippers have used the pepper or the celery crate. For many years Louisiana beets, carrots, radishes, shallots, and turnips have been packed in the 4-bushel barrel, with 50 to 60 pounds of cracked ice. Western crates and bushel round stave baskets are also used. In California the paper-lined lettuce crate has come into favor for carrots. In Texas bunched vegetables are packed in the 1-bushel basket. More recently the so-called "half crate", approximately 9 by 13 by 21½ inches, inside, has become popular in most of the important early-vegetable sections. In Colorado root-type vegetables are loaded in bulk between layers of ice. For topped carrots, New York uses the barrel, bushel basket, and a 100-pound sack measuring 23 by 40 inches; the latter is the most popular of the three packages.

## CONCLUSION

Great variations exist in fruit and vegetable containers. Many of these differences will always exist, because different types of commodities require different types of containers and because manufacturers in different sections of the country can readily supply certain types of containers and cannot supply other types. The last of these two reasons is the principal obstacle in the way of adopting a specific container throughout the United States for any given commodity. However, the vast interchange of fruits and vegetables that now takes place throughout the country is acquainting the various growing sections with the containers used in other sections, and out of this is likely to come the adoption in a more general way of those containers which prove best adapted to the shipping of a commodity and which are at the same time most easily obtained.

Meanwhile the need for standardizing those types of containers not now regulated in any way on a national scale grows more apparent. The benefits accruing from the Federal standardization of berry baskets, till baskets, Climax baskets, hampers, round- and flat-bottom stave baskets, and splint or market baskets, and barrels, are universally recognized. There seems to a growing demand that the same principle of standardization be applied to cartons, crates, and boxes for fruits and vegetables. A bill to accomplish this and to consolidate and equalize container legislation has been introduced in Congress.